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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,012	11/13/2001	Kenichi Watanabe	011264	6363

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EXAMINER

CHU, CHRIS C

ART UNIT PAPER NUMBER

2815

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,012

Applicant(s)

WATANABE, KENICHI

Examiner

Chris C. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 22 is/are pending in the application.
- 4a) Of the above claim(s) 2 - 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 15 May 2003 is: a) ☐ approved b) ☒ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on May 15, 2003 has been received and entered in the case.

Election/Restrictions

2. On page 6, applicant argues "applicant urge that claims 2, 4, 5, 7 and 9 still belong in Species V because Species V is not limited to Fig. 6A –D, but is actually covered in several drawings. For example, the specification, page 29, lines 17 – 18, reads, 'As shown in Fig. 6A, on an underlying structure 111 similar to that shown in Fig. 5A ...' Further, page 27, lines 4 – 5 reads 'For example, the underlying structure 111 is a structure that conductive plugs are embedded in the first lower insulating layer da1 shown in Fig. 4.' The specification explains that Fig. 4-6 are related and not necessarily exclusive species." This argument is not persuasive because the following limitation in claim 2 "the via conductors are disposed in holes formed through the first insulating layer and the first etching stopper layer" is not shown in Fig. 6D (Species V). Thus, Claim 2 reads on another embodiment of instant application. Since claims 4, 5, 7 and 9 are dependent claims of claim 2, claims 4, 5, 7 and 9 read on another embodiment of instant application.

Therefore, claims 2, 4, 5, 7 and 9 continue to be withdrawn from consideration for the reasons provided in the above paragraphs.

Drawings

3. Figures 12A ~ 14B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

Since the term “related art” is not clear or accurate description for Figs. 12A ~ 14B, the term “related art” should be --Prior Art--. See MPEP § 608.02(g).

For the above reason, the objection to the drawings is maintained.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 22, line 4, "said underlying structure" lacks antecedent basis.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

8. Claims 1, 21 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Iguchi.

Regarding claim 1, Iguchi discloses in Fig. 1, Fig. 3, Fig. 5(a), Fig. 5(b), Fig. 15, Fig. 17, column 8, lines 38 ~ 67 and column 12, lines 14 ~ 22 a semiconductor wafer device comprising:

- a semiconductor wafer (a structure in Fig. 17) having a circuit area (25 and 51) disposed in a central area of said semiconductor wafer and a peripheral area (26 and 50) of said semiconductor wafer not formed with circuits;

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- a number of semiconductor elements (elements in the area 25 which is sectioned into with scribe lines) formed in the circuit area;
- a multi-layer wiring structure (5 and 6) formed in the circuit area and having multi-layer wirings connected to said semiconductor elements and interlevel insulating films (2, 3 and 7), at least some of the multi-layer wirings being damascene wirings including wiring patterns and via conductors embedded in the interlevel insulating films; and
- a multi-layer structure (21) formed in the peripheral area, having insulating films (2, 3 and 7) made of a same materials as the interlevel insulating films and conductor patterns (the dark and “J” shaped structure in 21), defined between sidewalls of said insulating films (2, 3 and 7), made of same materials as the wiring patterns, and not having conductor patterns corresponding to the via conductors.

Regarding claim 21, Iguchi discloses in Fig. 1, Fig. 5(a), Fig. 5(b), Fig. 15 and column 12, lines 14 ~ 22 a semiconductor wafer device, comprising:

- an underlying structure (1) including a semiconductor wafer;
- a first insulating layer (2) having a lower dielectric constant than silicon oxide and formed over said underlying structure in an area excepting a peripheral area of said underlying structure;
- a second insulating layer (3) having a dielectric constant higher than said first insulating layer and formed on said first insulating layer;
- wiring grooves (at the place of 5) formed at least through said second insulating layer;
- patterns of conductor filled (6) in said wiring grooves; and

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- said second insulating layer or a layer (the dark and “J” shaped structure in 21) of a same material as the conductor covering an outermost side wall of said first insulating layer.

Regarding claim 22, Iguchi discloses in Fig. 1, Fig. 3, Fig. 5(a), Fig. 5(b), Fig. 15, Fig. 17, column 8, lines 38 ~ 67 and column 12, lines 14 ~ 22 said interlevel insulating films (2, 3 and 7) including a first insulating layer (2) having a lower dielectric constant than silicon oxide and formed over said semiconductor wafer in an area excepting a peripheral area of said underlying structure (1), and a second insulating layer (3) having a dielectric constant higher than said first insulating layer and formed on said first insulating layer and the device further comprising said second insulating layer or a layer (7) of a same material as the conductor covering an outermost side wall of said first insulating layer.

Response to Arguments

9. Applicant's arguments filed May 15, 2003 have been fully considered but they are not persuasive.

On page 7, applicant argues “since the metal residue in Iguchi ‘363 is located on the outer side wall of the patterned insulating layer, it is not defined between a pair of sidewalls of the insulating layer and therefore not in a wiring pattern.” This argument is not persuasive. Iguchi discloses in Fig. 1, Fig. 3, Fig. 5(a), Fig. 5(b), Fig. 15, Fig. 17 and column 8, lines 38 ~ 67 the metal residue (the dark and “J” shaped structure in 21) defined between sidewalls of the insulating films (2, 3 and 7).

Further, applicant argues “since there is no special description, there is no reason to use special silicon oxynitride which has a lower dielectric constant than silicon oxide.” This argument is not persuasive. Since Iguchi does not limit the silicon oxynitride (2 and 7) to be any particular or specific dielectric constant, hence his/her disclosure encompasses all well-known silicon oxynitride including a “lower dielectric constant than silicon oxide”. Such as, Ishikawa’s silicon oxynitride in column 6, lines 34 ~ 40 which has a lower dielectric constant than silicon oxide.

Finally, applicant argues “it has been shown that Iguchi ‘363 cannot logically anticipate the invention as now claimed because the polishing remains Iguchi ‘363 are not conductor patterns in the peripheral area as claimed by the applicants.’ This argument is not persuasive since it attempts to distinguish the claim from Iguchi merely through semantics. Whether one refers to element (the dark and “J” shaped structure in 21) as conductor patterns or polishing remains, no patentable difference exists since there is no structural or functional difference.

For the above reasons, the rejection is maintained.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

c.c.
July 28, 2003

Chris C. Chu
Examiner
Art Unit 2815



EDDIE LEE
SUPERVISORY PATENT EXAMINER
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